

Guidelines for neophyte referees

refereeing research papers in pure mathematics

An editor has asked you to referee a paper submitted to a journal (a reputable peer-reviewed research journal). The editor wants you to answer the following three questions and, on the basis of your answers, recommend either acceptance or rejection.

- (1) Is the paper correct?
- (2) Is the paper original?
- (3) Is the paper substantial enough, deep enough, significant enough to appear in the journal?

A paper is not publishable unless it is correct and original. You cannot recommend acceptance unless you can confidently say that the paper is both correct and original.

The correctness of the paper is the responsibility of the author, not yours. You are not expected to check every last detail. However, you are expected to make some effort, proportionate to the depth and importance of the paper, to verify its correctness. Based on your expertise in the area of the paper, you should be able to form a reasonably reliable opinion as to whether the paper is correct by thinking about the main results, the author's approach to proving them, the key ingredients in the proofs, and by checking some well-chosen details.

To be confident that the paper is original, you should not need to do a thorough literature search. Based on your expertise in the area of the paper, you should know the literature well enough to tell.

Once again, based on your expertise, you should be able to judge the depth and significance of the paper. If you cannot, then you should decline to referee the paper. Even if you can check the correctness of a paper, it does not necessarily follow that you are able to assess its depth and significance. You need to take into account the reputation and standards of the journal. Based on your experience, you probably have a sufficient sense of this without having to ask anyone.

If, after quickly reading through the paper, you can clearly see that the answer to one of the three questions is negative, then a full report is not necessary and you can recommend rejection straight away with a brief explanation. If you spot glaring mistakes that indicate unacceptable sloppiness in the preparation of the manuscript, then there is no need to read further: the paper should probably be rejected.

If you decide to recommend acceptance, or if you decide to recommend rejection but feel that the paper still has some merits, then a full report is in order. It is helpful to the editor if you start with a background paragraph, describing the context of the paper. Then you address the three questions with enough detail to justify the recommendation you make at the end.

It is not your job to proofread the paper. However, if you spot typos or minor mistakes in a paper that you recommend for acceptance, then it is helpful to the author and the journal if you attach a list of them to your report.

On occasion, a paper will have real merit but also some defects that the author should be able to fix. Then, instead of recommending outright acceptance, you can recommend conditional acceptance subject to the author making improvements to the paper. You should clearly specify the improvements that you feel are required and offer to look at the paper again once they have been made.

Finally, the refereeing job is a confidential matter between you and the editor. On rare occasions, you might want to contact the author to ask for a clarification of something in the paper. Such contact must be made anonymously through the editor, so consult the editor first. Normally, if the paper has gaps or contains claims that you, as an expert, cannot understand, then that can be a basis for rejection or, if the paper otherwise is of sufficient quality, conditional acceptance.

17 April 2015
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